AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): Rajiv Laroia et al.
Case: 12-4-1-1
Serial No.: 09/503,040
Filing Date: February 11, 2000
Group: 2665
Examiner: Roberta A. Stevens

I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signature: _____ Date: March 28, 2005

Title: Uplink Timing Synchronization and Access Control for a Multi-Access Wireless Communication System

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TRANSMITTAL OF APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith are the following documents relating to the above-identified patent application:

(1) Appeal Brief; and
(2) Copy of Notice of Appeal, filed on December 22, 2004, with copy of stamped return postcard indicating receipt of Notice by PTO on December 27, 2004.

Please extend the period for response by one month to March 27, 2005. Please charge **Ryan, Mason & Lewis, LLP Account No. 50-0762** the amount of $620 ($500 to cover this submission under 37 CFR §1.17(c) and $120 to cover the one month extension fee). In the event of non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit **Deposit Account No. 50-0762** as required to correct the error. A duplicate copy of this letter is enclosed.

Respectfully submitted,

Date: March 28, 2005

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APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants hereby appeal the final rejection dated September 22, 2004, of claims 1-4, 6-14, 16, 17, 20 and 25-34 of the above-identified application.

REAL PARTY IN INTEREST

The present application is assigned to Lucent Technologies Inc., as evidenced by an assignment recorded February 11, 2000 in the U.S. Patent and Trademark Office at Reel 010634, Frame 0400. The assignee Lucent Technologies Inc. is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals or interferences.

STATUS OF CLAIMS

The present application was filed on February 11, 2000 with claims 1-34. Claims 1-34 are currently pending in the application. Claims 1 and 26-34 are the independent claims.

Each of claims 1-4, 6-14, 16, 17, 20 and 25-34 stands finally rejected under 35 U.S.C. §103(a). Dependent claims 5, 15, 18, 19 and 21-24 are indicated as containing allowable subject matter. Claims 1-4, 6-14, 16, 17, 20 and 25-34 are appealed.

STATUS OF AMENDMENTS

There have been no amendments filed subsequent to the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention as set forth in independent claims 1 and 26-30 calls for transmission of at least one of an uplink access signal and an uplink timing synchronization signal from a mobile station to a base station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

It is important to note that the term "regular uplink data transmission" in the claimed invention is something other than the recited access signals or uplink timing synchronization signals. This is apparent from the claim language itself, as well as from the specification. For example, in the context of an illustrative embodiment, the specification at page 4, line 21, to page 5, line 3, states as follows:

> In accordance with the invention, mobiles transmit certain pre-specified, wideband timing and access signals in designated timing and access intervals. The timing and access intervals occur regularly within an uplink data stream, and all uplink data transmission is suspended during these intervals.
>
> The timing and access intervals are dedicated in the sense that regular uplink data transmission is suspended in the intervals. The use of the dedicated intervals permits the data

and timing to use different signaling, and prevents new mobiles that have not yet synchronized from interfering with synchronized data transmission.

FIG. 1 of the drawings illustrates, for this particular embodiment, an example of the claimed set of recurring intervals. Applicants note that this discussion of an illustrative embodiment is presented merely as one example of an arrangement falling within the claim language, and is not intended to limit the claim scope in any way. It should not be construed as an argument that certain elements of the illustrative embodiment constitute limitations of the claims.

Independent claim 1 is a transmitting method, and independent claim 28 is a corresponding receiving method.

Independent claim 26 is a transmission claim in means-plus-function format, and independent claim 29 is a reception claim in means-plus function format. For claim 26, the means for generating and means for transmitting may be embodied in respective portions of a mobile station, as illustrated by mobile station uplink access and synchronization system 100 in FIG. 2. See the specification at, for example, page 10, line 14, to page 12, line 3. For claim 29, the means for receiving and means for processing may be embodied in respective portions of a base station, as illustrated by base station uplink access and synchronization system 120 in FIG. 3. See the specification at, for example, page 12, lines 4-20.

Independent claims 27 and 30 are directed to respective mobile station and base station apparatus.

With regard to independent claims 31-34, each of these claims includes a limitation relating to transmission of an uplink access signal or an uplink timing synchronization signal from a mobile station to a base station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended. Claims 31 and 33 are directed to methods of transmitting and receiving, respectively, an uplink access signal in accordance with the specified limitation. Claims 32 and 34 are directed to methods of transmitting and receiving, respectively, an uplink timing synchronization signal in accordance with the specified limitation.

The claimed arrangements provide a number of significant advantages relative to conventional arrangements. For example, page 2, lines 15-28, of the specification indicates as follows:

> The suspension of data transmission allows pre-specified, wideband timing and access signals to be used.
>
> More particularly, the use of dedicated timing and access intervals in accordance with the invention allows timing synchronization and access control to be separated from data communications. This separation permits timing and access to use signaling which is different than that of data communication, and eliminates interference between these communications. For example, timing and access signals can be allocated wider bandwidths than data signals so that the mobile timing can be estimated more easily from the timing and access signals. Also, by using dedicated timing and access intervals, "new" mobiles, i.e., mobiles attempting an initial access to a given base station, which are generally not timing synchronized or power controlled, do not disrupt the data traffic during their access attempts.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-4, 6-14, 16, 17, 20 and 25-34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over European Patent Publication EP 0760564 A2 (hereinafter "Engstrom") in view of U.S. Patent No. 5,430,760 (hereinafter "Dent").

ARGUMENT

Claims 1-4, 6-8, 11-14, 17, 20 and 25-34

A proper *prima facie* case of obviousness requires that the cited references when combined must "teach or suggest all the claim limitations," and that there be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references or to modify the reference teachings. See Manual of Patent Examining Procedure (MPEP), Eighth Edition, August 2001, §706.02(j).

Applicants submit that the Examiner has failed to establish a proper *prima facie* case of obviousness in the present §103(a) rejection, in that the Engstrom and Dent references, even if assumed to be combinable, fail to teach or suggest all the limitations of each of independent claims 1 and 26-34, and in that no cogent motivation has been identified for combining the references or for modifying the reference teachings to reach the claimed invention. Furthermore, even if it is assumed that a *prima facie* case has been established, there are teachings in one or more of the references that controvert the obviousness arguments of the Examiner.

Each of independent claims 1, 26 and 27 calls for transmission of at least one of an uplink access signal and an uplink timing synchronization signal from a mobile station to a base station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

As mentioned previously herein, it is important to note that the term "regular uplink data transmission" in the claimed invention is something other than the recited access signals or uplink timing synchronization signals. See the above-quoted portions of the specification at page 4, line 21, to page 5, line 3. In an illustrative embodiment, the mobiles transmit certain pre-specified, wideband timing and access signals in designated timing and access intervals. The timing and access intervals occur regularly within an uplink data stream, and all uplink data transmission is suspended during these intervals. The timing and access intervals are dedicated in the sense that regular uplink data transmission is suspended during these intervals. Such an arrangement provides a number of significant advantages over conventional practice, as was noted above, including an ability to use pre-specified, wideband timing and access signals, thereby minimizing interference with uplink data signals.

The Examiner in formulating the §103(a) rejection acknowledges that Engstrom fails to meet this limitation of claims 1, 26 and 17. See the final Office Action at page 2, section 3. However, the Examiner argues that the limitation in question is met by the combined teachings of Engstrom and Dent. Applicants respectfully disagree. As will be described below, the proposed combination of Dent and Engstrom, like Engstrom alone, fails to meet the limitation in question.

The Examiner in support of the obviousness argument relies on the teachings in column 3, lines 31-67, of Dent. This portion of Dent provides as follows, with emphasis supplied:

In another aspect of the invention, a communication system including plural mobile radio telephone stations and at least one fixed base station is disclosed in which each mobile radio station has means for transmitting an access message initially at a relatively low power level; means for regulating the power level of said transmitting means; and control means for controlling said regulating means depending on whether said access message has been detected. The base station includes: means for receiving a composite of signals from said mobile stations; means for detecting mobile access messages; means for decoding detected access messages; and means for transmitting a reply message to the mobile station corresponding to detected access message.

The base station further includes means for ordering received signals that include access messages according to signal strength; means for selectively decoding the strongest signals; and means for removing the decoded signal from the received composite signal. The mobile station includes means for encoding scrambled access messages using bi-orthogonal block codes and means for scrambling access messages using scrambling codes. The base station transmitting means broadcasts a list of reserve scrambling codes separate from scrambling codes used for other radio communications.

The mobile station includes means for adjusting the time of transmission of the access message based on regulated power level and means for detecting time alignment information in the reply message. The base station includes means for determining the difference between the signal strength of the random access message detected in the base station and a predetermined signal strength, and means for determining a time difference between the times the random access was detected and a predetermined time. Finally, the base station detecting means searches for particular access messages at staggered time intervals.

The relied-upon passage fails to teach or suggest the claimed transmission of at least one of an uplink access signal and an uplink timing synchronization signal from a mobile station to a base station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended. More specifically,

there is no mention whatsoever in the relied-upon passage, or elsewhere in Dent, regarding suspension of regular uplink data transmission by one mobile station for a particular interval in which another mobile station transmits an uplink access signal. Regular uplink data transmission in Dent is referred to therein as transmission of traffic frames, and occurs for a given mobile station in a traffic channel specifically allocated to that mobile station, as described at column 16, lines 5-34, and column 17, lines 39-40. There is no suspension, partial or otherwise, of regular uplink data transmission in such an allocated traffic channel to allow transmission of an access signal by another mobile station.

Applicants note that Engstrom fails to supplement the above-described deficiencies of Dent. In fact, Engstrom not only fails to teach or suggest the limitation in question, but actively teaches away from it. The Engstrom reference is directed to a system which utilizes an entirely separate random access channel to communicate an uplink access signal from a mobile station to a base station. Regular uplink data transmission between mobile stations and the base station in Engstrom occur in "other channels . . . that carry modulated information," such as the Dedicated Information Channel (DICH), as is stated in Engstrom, at page 6, lines 52-55. It can be seen in FIG. 6 of Engstrom that the random access channel (RACH) is entirely separate from the DICH channels of mobile stations denoted User 1 and User 2.

Other portions of Engstrom further illustrate the fact that the random access channel described therein is separate from the channels used for uplink data transmission. For example, Engstrom at page 6, lines 26-37 states as follows regarding the various types of random access channel that may be implemented, with emphasis supplied:

> The three types of random access channel are herein denoted as type 1, type 2 and type 3.
>
> A type 1 random access channel carries the random access sequence on all available sub-carriers. The m-sequence has a length of 511 symbols. This type of random access channel operates at very low SNR so that the random access does not disturb other traffic.
>
> A type 2 random access channel is similar to type 1 random access channel in that the m-sequence is placed on all sub-carriers. However, some of these sub-carriers are dedicated

to the random access channel, and these are not available to other users, and use a higher power than the other sub-carriers.

A type 3 random access channel uses only dedicated sub-carriers for the random access sequence. As in type 2 random access channel, dedicated sub-carriers are not available to other users so the SNR will be significantly better. The m-sequence will, however, be much shorter than the 511 symbol m-sequence used in the type 1 random access channel because only a limited number of sub-carriers are allocated to the random access channel.

Engstrom, by teaching the use of uplink random access channels that are entirely separate from the uplink data channels used for regular uplink data transmission, therefore actively teaches away from the above-noted limitation of claims 1, 26 and 27 relating to transmission of an uplink access signal or an uplink timing synchronization signal from a mobile station to a base station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended. As described previously, the teachings of Dent also fail to meet this particular limitation of claims 1, 26 and 27, and are more properly viewed as teaching away from the claimed arrangements.

To summarize, both Engstrom and Dent teach to use a separate random access channel for transmission of uplink access signals. This is readily apparent from, for example, FIG. 6 in Engstrom, which shows the separate nature of the RACH used for random access signals and the DICH used for regular uplink data transmission, and column 16, lines 5-34, in Dent, which describes regular uplink data transmission occurring in assigned traffic channels separate from a channel used for random access. Accordingly, regular uplink data transmission occurs in channels other than the random access channel, and thus there is no need in Engstrom or Dent to at least partially suspend regular uplink data transmission from one mobile when another is sending a random access signal over the random access channel. Neither Engstrom nor Dent discloses or suggests that there is any type of suspension whatsoever in a respective DICH or traffic channel of a given mobile station while another mobile station transmits a random access signal. In fact, the Engstrom and Dent systems apparently use separate access and data transmission channels for the purpose of avoiding

any interruption or other suspension in the regular uplink data transmission of one mobile station when another is transmitting an access signal.

Therefore, the collective teachings of Engstrom and Dent, if assumed for purposes of argument to be combinable, fail to meet the limitations of claims 1, 26 and 27. These claims are not obvious in view of the proposed combination.

The Examiner in the final Office Action at page 11, section 43, more specifically relies on the teachings in the above-quoted portion of Dent at column 3, lines 56-67. However, these teachings relate only to the operation of the random access channel in Dent, and not to regular uplink data transmission. As Applicants noted above, regular uplink data transmission in Dent occurs in assigned traffic channels, as described at column 16, lines 5-34. There is no teaching whatsoever in Dent regarding the suspension of regular uplink data transmission in a traffic channel allocated to a given mobile station while another mobile station transmits an uplink access signal. This passage in Dent relied upon by the Examiner simply indicates that different mobile stations may transmit their respective access signals at different times, and this is not what is claimed. The claims at issue call for at least a partial suspension of regular uplink data transmission by one mobile station when, for example, another mobile station is transmitting an access signal. In the context of Dent, this would require at least partial suspension of regular uplink data transmission in the traffic channel assigned to one mobile station while another mobile station transmits an access signal. It is clear from the Dent reference that there is no such at least partial suspension of regular uplink data transmission disclosed therein.

The Examiner in an Advisory Action dated February 24, 2004, again asserts that the operation of the random access channels in Dent and Engstrom somehow teaches or suggests the claim limitation which requires transmission of at least one of an uplink access signal and an uplink timing synchronization signal from a mobile station to a base station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended. It appears that the Examiner, despite the Applicants repeated arguments, still does not appreciate that regular uplink data transmission does not occur in the random access channels of Dent and Engstrom. The claims require that regular uplink data transmission is something other than an uplink access signal or an uplink timing

synchronization signal, and the failure of the Examiner to recognize this is tantamount to ignoring explicit claim limitations.

Applicants further note that the proposed combination of Engstrom and Dent fails to provide the advantages of the claimed arrangements, which were outlined previously herein.

With regard to motivation, the proposed combination of Engstrom and Dent appears to be based on a piecemeal reconstruction of the claimed invention, with the benefit of hindsight, rather than on any objective evidence in the references themselves.

More specifically, the Examiner at pages 2-3, section 4, of the final Office Action states as follows regarding motivation to combine Engstrom and Dent, with emphasis supplied:

> It would have been obvious to one of ordinary skill in the art to adapt to Engstrom's system Dent's random access method to avoid interference in the system.

The Federal Circuit has stated that when patentability turns on the question of obviousness, the obviousness determination "must be based on objective evidence of record" and that "this precedent has been reinforced in myriad decisions, and cannot be dispensed with." In re Sang-Su Lee, 277 F.3d 1338, 1343 (Fed. Cir. 2002). Moreover, the Federal Circuit has stated that "conclusory statements" by an examiner fail to adequately address the factual question of motivation, which is material to patentability and cannot be resolved "on subjective belief and unknown authority." Id. at 1343-1344. There has been no showing in the present §103(a) rejection of objective evidence of record that would motivate one skilled in the art to combine Engstrom and Dent, or to modify their teachings to reach the particular limitations in question. The statement of obviousness given by the Examiner in the final Office Action is precisely the type of subjective, conclusory statement that the Federal Circuit has indicated provides insufficient support for an obviousness rejection.

In addition, both Engstrom and Dent individually provide uplink random access techniques that when applied to a given mobile station do not involve any partial or complete suspension of regular uplink data transmission, as opposed to random access signals, from any other mobile station. This is directly contrary to the claimed invention. Applicants respectfully submit that each of the references teaches away from the claimed invention. Thus, even if it is assumed that a proper *prima*

facie case has been established, there are particular teachings in the references which controvert the obviousness argument put forth by the Examiner.

Independent claims 28-34 include limitations that are similarly not met by the proposed combination of Engstrom and Dent, and are believed allowable for substantially the same reasons identified above with regard to claims 1, 26 and 27.

Dependent claims 2-4, 6-8, 11-14, 17, 20 and 25 are believed allowable at least by virtue of their dependence from independent claim 1.

Claim 9

Dependent claim 9 specifies that, in order to gain access, the mobile station transmits, in a timing and access interval, one of a set of designated access signals which are common for and known to all mobile stations attempting access to the base station. The Examiner relies generally on the teachings in column 3 of Dent as allegedly disclosing this limitation, but there is no suggestion therein, or in Engstrom, regarding a timing and access interval as claimed. An illustrative embodiment of a timing and access interval of the type claimed was described above in conjunction with the reference to FIG. 1 of the drawings.

Claim 10

Dependent claim 10 specifies that in each of a plurality of timing and access intervals, the base station searches for the presence of a transmitted access signal to determine if a mobile station is attempting access, and after detecting an access, utilizes control logic to determine whether the access can be granted. Again, the Examiner relies generally on the teachings in column 3 of Dent as allegedly disclosing this limitation, but there is no suggestion therein, or in Engstrom, regarding a timing and access interval as claimed.

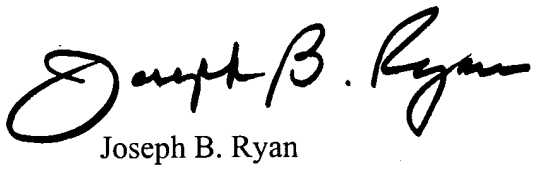
Claim 16

Dependent claim 16 specifies that, in response to a negative acknowledgment or the lack of an acknowledgment, the mobile station is operative to retransmit an access signal in a later timing and access interval. The Examiner relies generally on the teachings in columns 7 and 8 of Dent as

allegedly disclosing this limitation, but there is no suggestion therein, or in Engstrom, regarding a timing and access interval as claimed.

In view of the above, Applicants believe that claims 1-34 are in condition for allowance, and respectfully request the withdrawal of the §103(a) rejection.

Respectfully submitted,



Date: March 28, 2005

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CLAIMS APPENDIX

1. A method of uplink communication between a mobile station and a base station of a wireless communication system, the method comprising the step of:

transmitting at least one of an uplink access signal and an uplink timing synchronization signal from the mobile station to the base station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

2. The method of claim 1 wherein the wireless system comprises an orthogonal frequency division multiplexed (OFDM) system.

3. The method of claim 1 wherein the set of periodically recurring intervals comprise a set of time slots that are synchronized to a downlink established between the base station and the mobile station.

4. The method of claim 1 wherein the base station in response to a generic uplink access signal assigns an uplink channel to the mobile station and subsequently transmits power control and synchronization information to the mobile station, such that the mobile station initiates a call set-up process over the assigned uplink channel.

5. The method of claim 1 wherein uplink synchronization is conducted on a group-by-group basis in which each of a plurality of mobile stations is assigned to one of M groups, and in each of at least a subset of the intervals, each of the mobile stations in a particular one of the M groups of mobile

stations transmits an uplink timing synchronization signal, while each of the mobile stations in the other M - 1 groups suspends uplink transmission, and wherein the uplink synchronization cycle repeats every M intervals.

6. The method of claim 1 wherein a least a subset of a plurality of mobile stations adjust their uplink transmission times such that they are received synchronized at the base station.

7. The method of claim 1 wherein downlink and uplink timing are synchronized at the base station, and the mobile station initially synchronizes to the base station downlink, such that the mobile station is initially synchronized with a timing error of at most one round-trip propagation delay.

8. The method of claim 7 wherein the mobile station obtains the initial synchronization prior to acquiring an uplink channel, and remains synchronized in this manner even when access is not immediately required.

9. The method of claim 1 wherein in order to gain access, the mobile station transmits, in a timing and access interval, one of a set of designated access signals which are common for and known to all mobile stations attempting access to the base station.

10. The method of claim 1 wherein in each of a plurality of timing and access intervals, the base station searches for the presence of a transmitted access signal to determine if a mobile station is

attempting access, and after detecting an access, utilizes control logic to determine whether the access can be granted.

11. The method of claim 1 wherein in response to a successfully detected access signal, the base station is configured to broadcast an acknowledgment or a negative acknowledgment in a downlink channel known to each of a plurality of mobile stations, wherein the acknowledgment contains an uplink and/or downlink channel assignment for the mobile station to initiate a call set-up process.

12. The method of claim 1 wherein the base station is operative to estimate the received signal power and arrival time of an access signal of the mobile station, such that if the access is granted, the base station can send initial power and timing correction information in the access acknowledgment.

13. The method of claim 1 wherein access can be denied if the access signal was not received with sufficient power to ensure that the timing estimation has a desired level of accuracy.

14. The method of claim 1 wherein the mobile station is operative to perform identification, authentication and call set-up process initiation operations on assigned uplink and downlink channels after power levels and timing have been corrected via interaction with the base station.

15. The method of claim 1 wherein the base station performs a collision detection operation in order to detect a situation in which more than one mobile station has transmitted the same access signal

in the same timing and access interval, and further wherein if a collision is detected, the access can be denied, and the base station broadcasts a specific collision alert signal on a downlink channel known to a plurality of mobile stations.

16. The method of claim 1 wherein in response to a negative acknowledgment or the lack of an acknowledgment the mobile station is operative to retransmit an access signal in a later timing and access interval.

17. The method of claim 1 wherein in order to reduce the probability of repeated collisions, each of a plurality of mobile stations are operative to select subsequent access signals from an access signal set in a manner which is independent of previous access signals selected by a particular mobile station.

18. The method of claim 1 wherein a plurality of mobile stations are operative to utilize a random back-off procedure to determine the time between subsequent access attempts, and to transmit subsequent access signals at a higher power in the event of a failure of a previous access attempt.

19. The method of claim 15 wherein when collision detection is not performed, or when the detection is not fully reliable, the base station is operative to perform a reliability test on data associated with the assigned channels to determine if more than one mobile station has attempted to use the channel.

20. The method of claim 1 wherein the mobile station is operative to send a unique identification as part of a call set-up process, and the base station is operative to re-transmit the unique identification back to the mobile station in a downlink so that the mobile station can confirm that it is the intended user of the channel.

21. The method of claim 1 wherein in order to track drifts in timing and to improve initial synchronization, the mobile station is operative to continually re-synchronize throughout a period for which it is connected to the base station.

22. The method of claim 1 wherein the mobile station is operative to re-synchronize by transmitting a pre-determined timing re-synchronization signal in a designated timing and access interval, and further wherein the base station is operative to measure the arrival time of the signal, and deliver an appropriate timing correction back to the mobile station in a downlink.

23. The method of claim 1 wherein in each of a plurality of timing and access intervals, only a designated subset of a set of mobile stations connected to the base station transmit re-synchronization signals, so as to permit the mobile stations to use wider band signals for re-synchronization than would otherwise be possible, and to free up additional bandwidth for the access signals.

24. The method of claim 1 wherein the mobile station is assigned a re-synchronization schedule comprising a sequence of intervals and re-synchronization signals to use during a call set-up process,

and further wherein the re-synchronization schedule ensures that timing re-synchronization is sufficiently frequent to cover a maximum clock drift and change in round-trip propagation delay between successive re-synchronizations.

25. The method of claim 1 wherein the base station is operative to request an additional re-synchronization for a particular mobile station if the base station determines that such a re-synchronization is required.

26. An apparatus for uplink communication between a mobile station and a base station of a wireless communication system, the apparatus comprising:

means for generating at least one of an uplink access signal and an uplink timing synchronization signal; and

means for transmitting the generated at least one signal from the mobile station to the base station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

27. An apparatus for use in a wireless communication system, the apparatus comprising:

a mobile station uplink access and synchronization system operative to transmit at least one of an uplink access signal and an uplink timing synchronization signal to a base station of the system in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

28. A method of uplink communication between a mobile station and a base station of a wireless communication system, the method comprising the step of:

receiving in the base station at least one of an uplink access signal and an uplink timing synchronization signal transmitted from the mobile station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

29. An apparatus for uplink communication between a mobile station and a base station of a wireless communication system, the apparatus comprising:

means for receiving in the base station at least one of an uplink access signal and an uplink timing synchronization signal transmitted from the mobile station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended; and

means for processing the received at least one signal.

30. An apparatus for use in a wireless communication system, the apparatus comprising:

a base station uplink access and synchronization system operative to receive at least one of an uplink access signal and an uplink timing synchronization signal transmitted from a mobile station of the system in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

31. A method of uplink communication between a mobile station and a base station of a wireless communication system, the method comprising the step of:

transmitting an uplink access signal from the mobile station to the base station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

32. A method of uplink communication between a mobile station and a base station of a wireless communication system, the method comprising the step of:

transmitting an uplink timing synchronization signal from the mobile station to the base station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

33. A method of uplink communication between a mobile station and a base station of a wireless communication system, the method comprising the step of:

receiving in the base station an uplink access signal transmitted from the mobile station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

34. A method of uplink communication between a mobile station and a base station of a wireless communication system, the method comprising the step of:

receiving in the base station an uplink timing synchronization signal transmitted from the mobile station in a particular one of a set of recurring intervals in which regular uplink data transmission from at least one additional mobile station to the base station is at least partially suspended.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None

PTO/SB/31 (09-04)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Docket Number (Optional): Laroia 12-4-1-1

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on December 22, 2004

Signature: V. Bencivenni

Typed or printed name: V. Bencivenni

In re Application of: R. Laroia et al.

Application Number	Filed
09/503,040	February 11, 2000

For: Uplink Timing Synchronization and Access Control for a Multi-Access Wireless Communication System

Art Unit	Examiner
2665	Roberta A. Stevens

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $ 500.00

☐ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is: $ _____

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account. I have enclosed a duplicate copy of this sheet.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 50-0762 . I have enclosed a duplicate copy of this sheet.

☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is enclosed.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

☒ attorney or agent of record. Registration number 37,922

☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34: _____

Joseph B. Ryan
Signature

Joseph B. Ryan
Typed or printed name

(516) 759-7517
Telephone number

December 22, 2004
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 41.31. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Receipt in the USPTO is hereby acknowledged of:

Transmittal Letter - 1 page
Response to Final Office Action - 9 pages
Notice of Appeal - (Orig. & 1 copy)

December 22, 2004
Laroia 12-4-1-1
Serial No. 09/503,040
1200-316